

WHAT IS CLAIMED AS NEW AND DESIRED TO BE SECURED BY LETTERS
PATENT OF THE UNITED STATES IS:

1. An information recording multibeam light source comprising:

5 a semiconductor laser array including a plurality of light emitting points in a single package, said plurality of light emitting points being formed to be positioned in linear relationship to one another and having an equidistant pitch so as to respectively emit laser beams simultaneously scanned over a recording substrate; and

10 adjusting means for adjusting a position of said semiconductor laser array so as to satisfy the relation $\theta \leq \tan^{-1} \{1/(n-1)\}$, where angle θ is defined by first and second straight lines on an image recording substrate, said first straight line drawn perpendicular to a primary scanning direction and said second straight line drawn through respective centers of a first and an n-th laser beam spots formed by projecting laser beams emitted respectively from said plurality of light emitting points.

15 2. The information recording multibeam light source according to claim 1, wherein:

said adjusting means is capable of rotating said semiconductor laser array around at least a vicinity of a midpoint of a straight line drawn by connecting centers of said first and n-th laser beam spots.

3. The information recording multibeam light source according to claim 1, wherein:

20 an interval of recorded dot density in a secondary scanning direction formed by said adjusting means is 50 μm at most.

4. The information recording multibeam light source according to claim 2, wherein:

an interval of recorded dot density in a secondary scanning direction formed by said adjusting means is 50 μm at most.

5. An information recording multibeam light source comprising:

25 a plurality of semiconductor laser arrays each including a plurality of light emitting

points in a single package, said plurality of light emitting points being formed to be positioned in linear relationship to one another and having an equidistant pitch so as to respectively emit laser beams simultaneously scanned over a recording substrate; and

adjusting means for adjusting each of said semiconductor laser arrays individually to a position so as to satisfy the relation $\theta \leq \tan^{-1}\{1/(n-1)\}$, where angle θ is defined by first and second straight lines on an image recording substrate for each of said semiconductor laser arrays, the first straight line drawn perpendicular to a primary scanning direction and the second straight line drawn through respective centers of a first and an n-th laser beam spots formed by projecting laser beams emitted respectively from said plurality of light emitting points.

6. The information recording multibeam light source according to claim 5, wherein:
said adjusting means is capable of rotating each one of said plurality of semiconductor laser arrays around at least a vicinity of a midpoint of a straight line drawn by connecting centers of said first and n-th laser beam spots.

7. The information recording multibeam light source according to claim 5, wherein:
an interval of recorded dot density in a secondary scanning direction formed by said adjusting means is 50 μm at most.

8. The information recording multibeam light source according to claim 5, wherein:
said plurality of semiconductor laser arrays comprises a first laser array defining an optical axis of laser beams aligned to be approximately parallel to and tilted by a relatively minute angle from that of other laser arrays, so that a position of said laser beam spots on the recording substrate formed by said first laser array is adjusted to be displaced from that of beam spots from said other laser arrays by a predetermined distance along the primary scanning direction.

9. The information recording multibeam light source according to claim 8, wherein:
said adjusting means is capable of rotating each of said semiconductor laser arrays
around at least a vicinity of a midpoint of a straight line drawn by connecting centers of said
first and n-th laser beam spots.

5 10. The information recording multibeam light source according to claim 8, wherein:
an interval of recorded dot density in a secondary scanning direction formed by said
adjusting means is 50 μm at most.

11. An information recording multibeam light source comprising:
a semiconductor laser array including a plurality of light emitting points in a single
10 package, said plurality of light emitting points being formed to be positioned in linear
relationship to one another and having an equidistant pitch so as to respectively emit laser
beams simultaneously scanned over a recording substrate; and
adjusting means for adjusting a position of said semiconductor laser array so as to
15 satisfy the relation $\theta \leq \tan^{-1}\{1/(n-1)\}$, where angle θ is defined by first and second straight
lines on an image recording substrate, the first straight line drawn perpendicular to a primary
scanning direction and the second straight line drawn through respective centers of a first and
an n-th laser beam spots formed by projecting laser beams emitted respectively from said
plurality of light emitting points.

20 12. The information recording multibeam light source according to claim 11,
wherein:

said adjusting means is capable of rotating said semiconductor laser array around at
least a vicinity of a midpoint of a straight line drawn by connecting centers of said first and n-
th laser beam spots.

13. The information recording multibeam light source according to claim 11,

wherein:

an interval of recorded dot density in a secondary scanning direction formed by said adjusting means is 50 μm at most.

14. The information recording multibeam light source according to claim 12,

wherein:

an interval of recorded dot density in a secondary scanning direction formed by said adjusting means is 50 μm at most.

15. An information recording multibeam light source comprising:

a plurality of semiconductor laser arrays each including a plurality of light emitting points in a single package, said plurality of light emitting points positioned in linear relationship to one another and having an equidistant pitch so as to respectively emit laser beams simultaneously scanned over a recording substrate; and

adjusting means for adjusting each of said semiconductor laser arrays individually for a position so as satisfy the relation $\theta \leq \tan^{-1} \{1/(n-1)\}$, where angle θ is defined by first and second straight lines on an image recording substrate for each of said semiconductor laser arrays, said first straight line drawn perpendicular to a primary scanning direction and said second straight line drawn through respective centers of a first and an n-th laser beam spots formed by projecting laser beams emitted respectively from said plurality of light emitting points.

16. The information recording multibeam light source according to claim 15,

wherein:

said adjusting means is capable of rotating each of said semiconductor laser arrays around at least a vicinity of a midpoint of a straight line drawn by connecting centers of said first and n-th laser beam spots.

17. The information recording multibeam light source according to claim 15,
wherein:

an interval of recorded dot density in a secondary scanning direction formed by said
adjusting means is 50 μm at most.

18. The information recording multibeam light source according to claim 15, further
comprising:

aligning means for aligning an optical axis of laser beams from a first laser array to be
approximately parallel to and tilted by a relatively minute angle from that of other laser
arrays, so that a position of said laser beam spots on the recording substrate formed by said
first laser array is adjusted to be displaced from that of beam spots from said other laser
arrays by a predetermined distance along the primary scanning direction.

19. The information recording multibeam light source according to claim 18,
wherein:

said adjusting means is capable of rotating each of said semiconductor laser arrays
around at least a vicinity of a midpoint of a straight line drawn by connecting centers of said
first and n-th laser beam spots.

20. The information recording multibeam light source according to claim 18,
wherein:

an interval of recorded dot density in a secondary scanning direction formed by said
adjusting means is 50 μm at most.

21. An information recording multibeam light source comprising:

a semiconductor laser array including a plurality of light emitting points in a single
package, said plurality of light emitting points being formed to be positioned in linear
relationship to one another and having an equidistant pitch so as to respectively emit laser

beams simultaneously scanned over a recording substrate; and

a position adjustor, said position adjustor configured to adjust a position of said semiconductor laser array so as to satisfy the relation $\theta \leq \tan^{-1}\{1/(n-1)\}$, where angle θ is defined by first and second straight lines on an image recording substrate, said first straight line drawn perpendicular to a primary scanning direction and said second straight line drawn through respective centers of a first and an n-th laser beam spots formed by projecting laser beams emitted respectively from said plurality of light emitting points.

22. The information recording multibeam light source according to claim 21,

wherein:

said position adjustor is capable of rotating said semiconductor laser array around at least a vicinity of a midpoint of a straight line drawn by connecting centers of said first and n-th laser beam spots.

23. The information recording multibeam light source according to claim 21,

wherein:

an interval of recorded dot density in a secondary scanning direction formed by said position adjustor is 50 μm at most.

24. The information recording multibeam light source according to claim 22,

wherein:

an interval of recorded dot density in a secondary scanning direction formed by said position adjustor is 50 μm at most.

25. An information recording multibeam light source comprising:

a plurality of semiconductor laser arrays each including a plurality of light emitting points in a single package, said plurality of light emitting points positioned in linear relationship to one another and having an equidistant pitch so as to respectively emit laser

beams simultaneously scanned over a recording substrate; and

a position adjustor, said position adjustor configured to adjust each of said semiconductor laser arrays individually to a position so as to satisfy the relation $\theta \leq \tan^{-1} \{1/(n-1)\}$, where angle θ is defined by first and second straight lines on an image recording substrate for each of said semiconductor laser arrays, the first straight line drawn perpendicular to a primary scanning direction and the second straight line drawn through respective centers of a first and an n-th laser beam spots formed by projecting laser beams emitted respectively from said plurality of light emitting points.

26. The information recording multibeam light source according to claim 25, wherein:

said position adjustor is capable of rotating each one of said plurality of semiconductor laser arrays around at least a vicinity of a midpoint of a straight line drawn by connecting centers of said first and n-th laser beam spots.

27. The information recording multibeam light source according to claim 25, wherein:

an interval of recorded dot density in a secondary scanning direction formed by said position adjustor is 50 μm at most.

28. The information recording multibeam light source according to claim 25, wherein:

an optical axis of laser beams from a first laser array is aligned to be approximately parallel to and tilted by a relatively minute angle from that of other laser arrays, so that a position of said laser beam spots on the recording substrate formed by said first laser array is adjusted to be displaced from that of beam spots from said other laser arrays by a predetermined distance along the primary scanning direction.

29. The information recording multibeam light source according to claim 28,
wherein:

said position adjustor is capable of rotating each of said semiconductor laser arrays
around at least a vicinity of a midpoint of a straight line drawn by connecting centers of said
first and n-th laser beam spots.

30. The information recording multibeam light source according to claim 28,
wherein:

an interval of recorded dot density in a secondary scanning direction formed by said
position adjustor is 50 μm at most.

31. An information recording multibeam light source comprising:

a semiconductor laser array including a plurality of light emitting points in a single
package, said plurality of light emitting points being formed to be positioned in linear
relationship to one another and having an equidistant pitch so as to respectively emit laser
beams simultaneously scanned over a recording substrate; and

a position adjustor, said position adjustor configured to adjust a position of said
semiconductor laser array so as to satisfy the relation $\theta \leq \tan^{-1} \{1/(n-1)\}$, angle θ defined by
first and second straight lines on an image recording substrate, the first straight line drawn
perpendicular to a primary scanning direction and the second straight line drawn through
respective centers of a first and an n-th laser beam spots formed by projecting laser beams
emitted respectively from said plurality of light emitting points.

32. The information recording multibeam light source according to claim 31,
wherein:

said position adjustor is capable of rotating said semiconductor laser array around at
least a vicinity of a midpoint of a straight line drawn by connecting centers of said first and n-

th laser beam spots.

33. The information recording multibeam light source according to claim 31,

wherein:

an interval of recorded dot density in a secondary scanning direction formed by said
position adjustor is 50 μm at most.

34. The information recording multibeam light source according to claim 32,

wherein:

an interval of recorded dot density in a secondary scanning direction formed by said
position adjustor is 50 μm at most.

35. An information recording multibeam light source comprising:

a plurality of semiconductor laser arrays each including a plurality of light emitting
points in a single package, said plurality of light emitting points being formed to be
positioned in linear relationship to one another and having an equidistant pitch so as to
respectively emit laser beams simultaneously scanned over a recording substrate; and

a position adjustor, said position adjustor configured to adjust each of said
semiconductor laser arrays individually for a position so as satisfy the relation $\theta \leq \tan^{-1} \{1/(n-1)\}$, where angle θ is defined by first and second straight lines on an image recording
substrate for each of said semiconductor laser arrays, said first straight line drawn
perpendicular to a primary scanning direction and said second straight line drawn through
respective centers of a first and an n-th laser beam spots formed by projecting laser beams
emitted respectively from said plurality of light emitting points.

36. The information recording multibeam light source according to claim 35,

wherein:

said position adjustor is capable of rotating each of said semiconductor laser arrays

around at least a vicinity of a midpoint of a straight line drawn by connecting centers of said first and n-th laser beam spots.

37. The information recording multibeam light source according to claim 35, wherein:

5 an interval of recorded dot density in a secondary scanning direction formed by said position adjustor is 50 μm at most.

38. The information recording multibeam light source according to claim 35, further comprising:

10 an aligning apparatus aligning an optical axis of laser beams from a first laser array to be approximately parallel to and tilted by a relatively minute angle from that of other laser arrays, so that a position of said laser beam spots on the recording substrate formed by said first laser array is adjusted to be displaced from that of beam spots from said other laser arrays by a predetermined distance along the primary scanning direction.

15 39. The information recording multibeam light source according to claim 38, wherein:

said position adjustor is capable of rotating each of said semiconductor laser arrays around at least a vicinity of a midpoint of a straight line drawn by connecting centers of said first and n-th laser beam spots.

20 40. The information recording multibeam light source according to claim 38, wherein:

an interval of recorded dot density in a secondary scanning direction formed by said position adjustor is 50 μm at most.